NPIC/TSSG/DED-1969-09
10 April 1969

MEMORANDUM FOR: Chief, Development & Engineering Division, TSSG

SUBJECT : Evaluation of the Monocular Rapid Alignment Device, Contract [redacted] (File No.02308)

25X1

1. Photographic reconnaissance systems frequently record stereoscopic pairs of photographic images which are not inherently aligned; that is, they must be translated, rotated, and contracted or expanded, in one dimension or the other, under the microstereoscope before they can be properly oriented into a stereoscopic image. This requirement resulted in the development of prototype anamorphic eyepieces which function as attachments to the [redacted] Zoom 70 Microstereoscopes and [redacted] High Power Stereoviewers. These anamorphic lenses provide the capability of compensating for the misalignment often found in stereo reconnaissance imagery.

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2. However, it was felt that the optical adjustments provided by the anamorphic eyepieces were time-consuming, incomplete, and difficult to achieve, and some means of visual superimposition of the two images would be desirable. The Rapid Alignment Device was developed to provide the superimposed images that would permit the operator to observe the relative effect of the individual adjustments made with the anamorphic eyepieces and to better visualize the alignment process, thereby speeding up and improving the alignment of stereo pairs.

3. The anamorphic eyepieces were not available when development objectives for the Rapid Alignment Device were being formulated and various parameters such as size and weight were arbitrarily chosen. During operational evaluation of the alignment device it became apparent that the instrument was too heavy for the anamorphic eyepieces and was damaging teflon bearings in the rotating joints of the eyepieces. Further evaluation of the instrument was discontinued.

4. Operational evaluation had been completed by the Scientific Division and the Missiles and Space Division of the Imagery Exploitation Group. However, experience with the anamorphic eyepieces during this evaluation indicated that it was as easy to align imagery by alternately closing one eye and then the other as it was to mount and remove the Rapid Alignment Device. This was a process recommended to, but previously rejected by the PI's. As a result, IEG has reported marginal value for the present instrument.

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5. IEG was also questioned about, and requested to comment on, whether the fundamental principle of superimposing the images from anamorphic eyepieces merited further development toward a lighter and more compact instrument. IEG reported that the principle was not of sufficient value to warrant further effort.

6. It is possible to solve the problems of size and weight of the alignment device. However, in view of the present marginal value of the instrument, and considering that its value will probably decrease as greater familiarity is gained from use of the anamorphic eyepieces, a modified version of the alignment device does not appear to be desirable.

7. It is therefore recommended that the Monocular Rapid Alignment Device be removed from the project list.

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